National Aeronautics and Space Administration
NASA Marshall Star: Jan. 11, 2007 : Vol. 47/No. 16

MARSHALL STAR

Serving the Marshall Space Flight Center Community

Jan. 11, 2007

Director's corner

"I am amazed at how far we have come ... "

In my last Director's corner for 2006, I talked about feeling overwhelming gratitude whenever I look at all the work accomplished at the center. I think it is important to talk about our achievements because it is a part of human nature to want to know our work is making a difference. What better way to demonstrate the progress than with tangible examples.

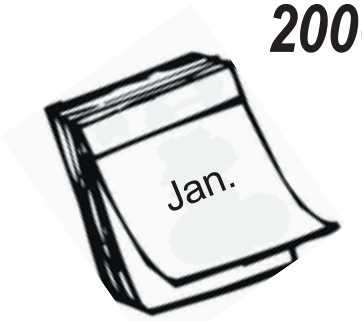
To put this in perspective, this issue of the Marshall Star is a snapshot of the enormous amount of work accomplished in 2006. As you read through the articles, keep in mind that your efforts enabled Marshall to deliver quality products and services. What we do is complex and takes a highly trained group of folks to carry it out. I appreciate your commitment and hope you feel proud of what you helped to accomplish last year.

David King

As 2007 gets into full swing, I want to point out that this coming Sunday, Jan. 14, marks the third anniversary of President Bush's announcement of the Vision for Space Exploration. I am amazed at how far we have come in such a short period of time, and I look forward to the exciting things that await Marshall and the agency in 2007.

David A. King
Director, Marshall Space Flight Center

Selected highlights of Marshall's 2006 year of great accomplishments



Stardust returns to Earth

NASA's Stardust mission returned safely to Earth on Jan. 15, when the capsule carrying cometary and interstellar particles successfully touched down in the Utah desert. The capsule's return marked the end of a 2.88-billion-mile, round-trip journey. Its return cargo, scientists believe, will help provide answers to fundamental questions about comets and the origins of the solar system. Stardust is part of NASA's Discovery Program of lower cost, scientifically focused exploration projects. NASA's Discovery and New Frontiers Program Office at the Marshall Center assists the Science Mission Directorate at NASA Headquarters with program management, technology planning, systems assessment, flight assurance and public outreach. http://stardust.jpl.nasa.gov/news/status/060115.html

New Horizons launches

New Horizons — the first close-up study of Pluto and its moons — launched Jan. 19 from Cape Canaveral Air Force Station, Fla. The launch marked an important initial step in the reconnaissance of our solar system. The New Horizons spacecraft will reach Pluto in 2015. The mission was the first in NASA's New Frontiers program of medium-class planetary missions. http://www.jhuapl.edu/newscenter/pressreleases/2006/060119.asp

NASA's Super Guppy delivers module to Marshall

NASA's Super Guppy aircraft delivered a module, originally developed for use as a habitation module for the International Space Station, to the Marshall Center on Feb. 8. The module is being used to conduct Advanced Environmental Control and Life Support System testing for future NASA Exploration missions. http://marshallstar.msfc.nasa.gov/2-16-06.pdf

Payload Operations Center marks 5th anniversary

March 19 marked the fifth anniversary of round-the-clock operations of NASA's Payload Operations Center at Marshall, supporting NASA research on board the International Space Station. http://marshallstar.msfc.nasa.gov/3-16-06.pdf

Marshall team helps 'walk in' Mars Reconnaissance Orbiter

Beginning in April, the Terrestrial and Planetary Environments Team in Marshall's Engineering Directorate provided an engineering-grade model used in a process called aerobraking to slowly "walk-in," or shrink, the orbit of the Mars Reconnaissance Orbiter. Using the model, the flight team for the orbiter sent the bus-sized spacecraft through the upper fringe of Mars' atmosphere 426 times between early April and Aug. 30, when the vehicle successfully entered orbit of the planet. http://marshallstar.msfc.nasa.gov/6-8-06.pdf

Student teams compete in 13th annual Great Moonbuggy Race

High school and college teams from around the country tested their engineering skills at the 13th annual Great Moonbuggy Race at the U.S. Space & Rocket Center on April 7-8. Students representing 33 teams from 10 states and Puerto Rico raced against the clock driving their self-powered moonbuggies on a half-mile lunar-like surface. The Huntsville Center for Technology team from Huntsville won the high school division, and the team from Pittsburg State University in Pittsburg, Kan., won the college division. http://moonbuggy.msfc.nasa.gov

Hundreds turn out for open house at Michoud

More than 250 industry representatives from aerospace and engineering companies attended an Open House on April 19 at NASA's Michoud Assembly Facility in New Orleans. The event highlighted the value — to NASA, Louisiana and the nation — of the Michoud complex, where contractors manufacture, assemble and process the space shuttle external tank. The event updated industry about progress of NASA's Constellation Program. Elements of the new Ares and Orion projects will be manufactured and processed at Michoud. http://marshallstar.msfc.nasa.gov/4-27-06.pdf

Marshall completes hot-fire test of engine fueled by LOX-methane

NASA, industry and the Air Force achieved a major milestone in April when a Marshall-led team successfully completed a 103-second hot-fire test of an engine fueled by liquid oxygen and liquid methane, or "LOX-methane." The test, conducted at the Marshall Center, is believed to be the longest in duration for such an engine developed and hot-fire tested in the United States, and fuels the promise of using such technology to support future Earth-to-orbit launches and missions to the moon, Mars and beyond. http://www.nasa.gov/centers/marshall/news/news/releases/2006/06-053.html

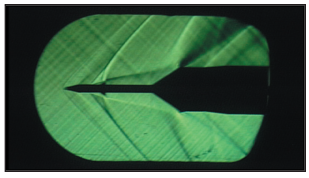
Marshall's Office of Academic Affairs supports three new Explorer Schools

In May, NASA welcomed 26 new NASA Explorer Schools in a three-year partnership to inspire students in science, technology, engineering and mathematics. Marshall's Office of Academic Affairs directly supports three of the schools — Tanner High School in Tanner, Ala.; Texarkana School District, Texarkana, Ark.; and Tuskegee Public Elementary School in Tuskegee, Ala. http://explorerschools.nasa.gov/portal/site/nes

Data Matrix named Marshall Invention of the Year

The technology that automatically identifies NASA components from space shuttle tiles to engine turbine blades was named Marshall's Invention of the Year at the center's Annual Honors Day ceremony in June. The honored invention, called the Data Matrix Family of Solutions, includes nine patents, a NASA technical standard and handbook, and an array of marking technologies used to identify, or "barcode," product parts. http://marshallstar.msfc.nasa.gov/7-27-06.pdf

Marshall conducts wind tunnel tests of future launch vehicle system



Marshall engineers conducted a new series of wind tunnel tests in June that will aid development of NASA's future space transportation system — the Ares I crew launch vehicle. The test series is part of a coordinated partnership between NASA field centers and industry to set the foundation for the design and development of the Orion crew module and Ares I vehicle as an integrated system. The tests were performed at Marshall's Aerodynamic Research Facility. http://marshallstar.msfc.nasa.gov/6-22-06.pdf

Lunar Program and Projects Office launched at Marshall

In the summer of 2006, the Marshall Center officially launched the Lunar Program and Projects Office, providing umbrella leadership for the entire spectrum of preliminary robotic missions, crewed lunar lander programs and other projects under way at NASA centers around the nation. Acting on behalf of NASA's Exploration Systems Mission Directorate and Science Mission Directorate in Washington, the office incorporates project management organizations at Goddard Space Flight Center in Greenbelt, Md., and Ames Research Center in Moffett Field, Calif.
http://www.nasa.gov/mission_pages/exploration/main/index.html

Space shuttle propulsion boosts return to flight

In a spectacular Independence Day display, Space Shuttle Discovery blasted off from the Kennedy Space Center, Fla., on its STS-121 mission to the International Space Station. This shuttle launch, the first of the year and the second return-to-flight mission, successfully tested shuttle safety improvements and repairs on the space station. The 13-day mission also produced never-before-seen, high-resolution images of the shuttle during and after launch. The flight verified the safety of the largest aerodynamic change to the external fuel tank in the shuttle's history, the protuberance air load ramps. The STS-121 mission was the first to fly without the ramps, which were removed after a piece of foam came off this area during Discovery's flight in July 2005. Discovery landed at Kennedy on July 17. http://www.nasa.gov/mission_pages/shuttle/shuttlemissions/sts121/main/index.html

Marshall completes main injector hardware hot-fire tests for development of J-2X engine

In July, NASA engineers completed the first series of hot-fire tests on subscale main injector hardware — an early step in development of the upper stage engine for NASA's Ares I crew launch vehicle and Earth Departure Stage of the Ares V cargo launch vehicle. The injector is a major component of the engine that injects and mixes liquid hydrogen and liquid oxygen propellants in the combustion chamber, where they are ignited and burned to produce thrust. The initial tests were performed on a subscale injector that contained 40 individual elements for propellant flow. The tests, part of a five-month series begun in May, were conducted in Marshall's East Test Area. http://marshallstar.msfc.nasa.gov/8-3-06.pdf

NOAX makes second flight on STS-121

A Marshall-developed experimental space shuttle wing repair material made its second flight to orbit in July. The repair material, dubbed "NOAX" for non-oxide adhesive experiment, was successfully tested on the STS-121 mission. http://marshallstar.msfc.nasa.gov/6-29-06.pdf

Oxygen Generation System shipped and launched

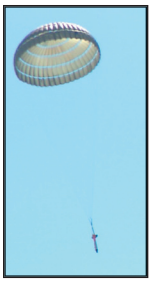
In 2006, Marshall saw the shipment and launch of the oxygen generation system to the International Space Station, where the system will use water to generate breathable oxygen for crew members. Designed and tested by Marshall and Hamilton Sundstrand Space Systems International, of Windsor Locks, Conn., the system launched July 4 on board the Space Shuttle Discovery STS-121 mission. The system had been shipped from Marshall to Kennedy on Jan. 24.
http://www.nasa.gov/centers/marshall/news/news/releases/2006/06-017.html

Marshall hosts first Exploration Systems Mission Directorate quarterly Aug. 1-3

The Marshall Center hosted NASA's first ever Exploration Systems Mission Directorate Quarterly Program Management Review on Aug. 1-3. The unprecedented event brought together more than 150 invited guests from across the agency to discuss NASA's exploration program and projects and mission goals. The three-day review was held at the Monte Sano Lodge in Huntsville. Among those attending were NASA Administrator Michael Griffin, who also spoke to team members; Marshall Center Director David King; representatives from NASA Headquarters in Washington; and center directors and senior managers from Johnson Space Center, Kennedy Space Center, the Marshall Center and other NASA field centers. http://marshallstar.msfc.nasa.gov/8-10-06.pdf

NASA completes series of parachute recovery system tests for Ares I first stage

NASA and its industry partners completed a series of tests that will aid in the design and development of the parachute recovery system



for the first stage booster of NASA's Ares I launch vehicle. The drop tests were conducted the week of Aug. 14 at the U.S. Army's Yuma Proving Ground in Yuma, Ariz., on the recovery system's pilot parachute. The pilot parachute, approximately 11.5 feet in diameter, was packed and mounted inside a 1,500-pound drop test vehicle, approximately 12 inches in diameter and 12 feet long. An Army UH-1 Huey helicopter and a CH-47 Chinook helicopter were used to lift the drop test vehicle and release it from an elevation of 10,000 feet. The pilot parachute is the first element to be deployed in a three-stage parachute recovery system being designed and developed by NASA for the Ares I first stage booster. The system includes a pilot, drogue and three main parachutes, and is derived from the shuttle's solid rocket booster recovery system. http://marshallstar.msfc.nasa.gov/9-7-06.pdf

Payload Operations Center sends first command directly to station

On Aug. 16, the Payload Operations Center for the first time issued a command directly to the International Space Station — a departure from the normal mode of routing all commands through the Johnson Space Center in Houston. The instructions included both a payload command to experiments and a core systems command to vehicle operations. This was an important milestone in becoming a full backup control center and enhancing space station support capabilities at Marshall. http://marshallstar.msfc.nasa.gov/8-24-06.pdf

Marshall researchers deliver 'Lab-On-a-Chip' hardware

A Marshall research team in August delivered the unique state-of-the-art Lab-On-a-Chip Application Development Portable Test System, or LOCAD-PTS, to the Kennedy Center to prepare for its December flight to the International Space Station during STS-116. The portable test system is a handheld diagnostic reader and set of instruments small enough to fit into a compact ice cooler. The portable system will help astronaut-scientists perform biological studies necessary for an extended human presence in space, from crew health and spacecraft environmental studies to the search for life on other worlds. It will be tested on board the space station in early 2007.
http://www.nasa.gov/centers/marshall/news/news/releases/2006/06-138.html

Chandra marks seven years

In August, NASA's Chandra X-ray Observatory, managed by Marshall, marked seven years of stunning revelations. Among its noteworthy discoveries in 2006, the observatory helped scientists independently determine the Hubble constant, a critically important number that specifies the expansion rate of the universe. The result is significant because the Hubble constant tells us the size of the universe, its age and how much matter it contains.
http://www.nasa.gov/vision/universe/starsgalaxies/chandra7years.html

GLAST Burst Monitor tested and assembled

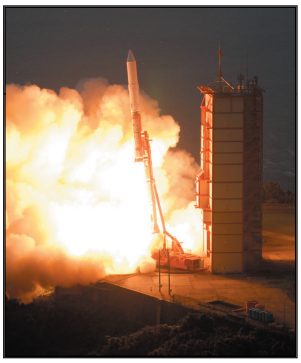
In August, NASA scientists and engineers completed final testing and assembly of the GLAST Burst Monitor, a space-based instrument for studying gamma ray bursts, the most powerful explosions in the universe. These bursts, scientists believe, originate in the collapse of massive stars — a process that eventually forms a black hole in space. The Marshall Center manages the GLAST Burst Monitor with a collaborator in Germany. http://www.nasa.gov/centers/marshall/news/news/releases/2006/06-091.html

NSSTC participates in NAMMA hurricane research

In mid-August, a team of Marshall scientists from the National Space Science and Technology Center joined other researchers in Africa to seek out the birthplace of some of the world's most powerful storms, and find new clues to solve the puzzle of how hurricanes are formed. Their research was part of the NASA African Monsoon Multidisciplinary Analyses, or NAMMA — a month-long hurricane research expedition based in the Cape Verde Islands, 350 miles off the coast of Senegal in West Africa. http://marshallstar.msfc.nasa.gov/8-31-06.pdf

STS-115 continues assembly of International Space Station

Propulsion elements developed at the Marshall Center — main engines, external tank and solid rocket boosters with their reusable solid rocket motors — successfully launched Space Shuttle Atlantis on its STS-115 mission to the International Space Station on Sept. 9. The flight was the first in a series of missions that will be among the most complex in space history. For the first time since late 2000, assembly of the International Space Station was resumed on this mission. Atlantis also delivered the first major new component to the station since 2002 and laid the groundwork for upcoming station assembly missions. STS-115 was one of the most photographed shuttle missions ever, with more than 100 high-definition, digital, video and film cameras documenting the launch and climb to orbit. Astronauts performed three spacewalks that completed truss installation, enabled solar arrays to be deployed and prepared an important radiator for later activation. They also installed a signal processor and transponder that transmits voice and data to the ground and performed other tasks to upgrade and protect the station's systems. Landing was at the Kennedy Center on Sept. 21. http://www.nasa.gov/mission_pages/shuttle/shuttlemissions/sts115/main/



Solar-B launches

On Sept. 22, Solar-B — an international mission to study the sun — launched from Japan. In orbit, Solar-B's name is "Hinode" — or sunrise. Hinode's "first light" — marked by the opening of each instrument's sunshade doors to capture images — began Oct. 21, with Hinode successfully obtaining images with all three of its on-board instruments — the X-ray Telescope, Solar Optical Telescope and Extreme Ultraviolet Imaging Spectrometer. Led by the Japan Aerospace Exploration Agency, Solar-B is a collaboration among the space agencies of Japan, the United States, the United Kingdom and Europe. The Marshall Center managed development of the scientific instrumentation provided by NASA, with additional support by academia and industry. http://www.nasa.gov/mission_pages/solar-b/index.html

Nearly 500 small business representatives attend Ares Industry Day on Sept. 29

Nearly 500 small business representatives from more than 200 companies from 12 states attended NASA's "Ares Industry Day" at the Von Braun Center in Huntsville Sept. 29. The event provided business leaders with a forum to network with representatives from NASA and large prime industry contractors, and to discuss business opportunities related to the design and development of NASA's Ares I and Ares V launch vehicles. http://marshallstar.msfc.nasa.gov/10-5-06.pdf

NSSTC unveils 11 years of global lightning data

In September, scientists at the National Space Science and Technology Center debuted a set of fully processed and collated global lightning data — 11 years worth of data — acquired by two Marshall-managed satellite instruments, the Optical Transient Detector and the Lightning Imaging Sensor. For the first time, severe-storm researchers will be able to study long-term lightning patterns and trends on a global scale, spanning an entire, 11-year cycle of waxing and waning solar activity. Lightning investigators at the NSSTC hope the new data will help link lightning activity to large-scale climate change and weather systems. Over time, these studies may help weather forecasters world-wide better understand dangerous weather patterns, and help minimize danger to lives and property. http://www.nasa.gov/centers/marshall/news/news/releases/2006/06-112.html

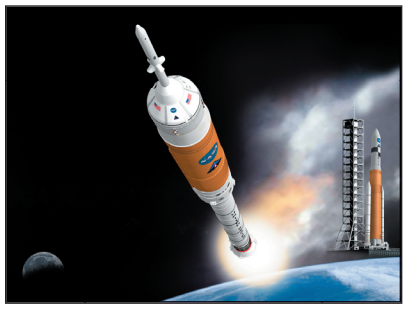
X-ray Calibration Facility tests James Webb Space Telescope element

In October, researchers at the Marshall Center's X-ray Calibration Facility concluded successful testing of the James Webb Space Telescope's backplane element — a segment of the support structure that will unfold in space to permit the next-generation telescope's massive mirror array to conduct unprecedented science operations in space. For two months, the backplane endured deep-cold temperatures in the facility's large-scale vacuum chamber, simulating the punishing space environment to test its structural resilience. http://marshallstar.msfc.nasa.gov/8-31-06.pdf

Former NASA flight director Gene Kranz featured at Marshall Safety Day

Best-selling author and former NASA director of Mission Operations Gene Kranz gave the keynote address for Marshall's Safety Day on Oct. 19. Kranz served as flight director for several of the Apollo missions, including the Apollo 11 lunar landing and the successful return of the Apollo 13 crew. Safety Day activities also included departmental discussions about challenges team members face relating to safety and mission success. The day's events included a centerwide panel discussion on safety topics. http://she.msfc.nasa.gov

NASA completes milestone review of next human spacecraft system



NASA completed a milestone first review of all systems for the Ares I and Ares V launch vehicles and the Orion spacecraft. The review brings the agency a step closer to launching the nation's next human space vehicle. NASA completed the systems requirements review of the Constellation Program in mid-November. Review results provide the foundation for design, development, construction and operation of the rockets and spacecraft necessary to take explorers to Earth orbit, the moon, and eventually to Mars. This is the first systems requirements review NASA has completed for a human spacecraft system since a review of the space shuttle's development held in October 1972.
http://www.nasa.gov/centers/marshall/news/news/releases/2006/H-06-354.html

Successful rocket motor test helps NASA's shuttle and Ares I

NASA's Space Shuttle Program successfully fired a reusable solid rocket motor Nov. 16 at a Utah facility. The two-minute test provided important information for nighttime shuttle launches and for the development of the rocket that will carry the next human spacecraft to the moon. The static firing of the full-scale, full-duration flight support motor was performed at 6 p.m. MST at ATK Launch Systems Group, a unit of Alliant Techsystems Inc. in Promontory, Utah, where the shuttle's solid rocket motors are manufactured. The flight support motor, or FSM-13, burned for approximately 123 seconds, the same time each reusable solid rocket motor burns during an actual space shuttle launch.
http://marshallstar.msfc.nasa.gov/11-22-06.pdf

STS-116 chalks up firsts

Space Shuttle Discovery lit up the night sky on Dec. 9 at the Kennedy Space Center as it began its STS-116 mission to the International Space Station — the first night launch in four years. An upgrade that will significantly improve shuttle flight safety — the Advanced Health Management System — made its debut on STS-116. The management system collects and processes turbopump accelerometer data to measure engine vibration. It flew in monitor-only mode on one engine during STS-116. Plans are to fly with three AHMS controllers — one on each shuttle engine — in monitor-only mode on STS-117 and in active mode on STS-118. Preliminary data indicates AHMS performed as expected. Two Marshall-developed payloads were delivered to the space station: the Lab-On-a-Chip Application Development Portable Test System, or LOCAD-PTS, and the Environmental Control and Life Support System, or ECLSS, which will help provide the crew with fresh air and water. Landing was at Kennedy on Dec. 22.
http://www.nasa.gov/mission_pages/shuttle/main/index.html

NASA completes review milestone for Ares I launch vehicle

NASA completed the Ares I crew launch vehicle system requirements review — the first such milestone for a U.S. human-rated launch vehicle system in more than 30 years. The review confirmed that the Ares I system requirements were complete, validated and responsive to mission requirements. It also confirmed that the Ares I architecture and design concept can fulfill the mission objectives, and the project is ready to begin engineering design activities. The system requirements review, completed Dec. 19, is the first in a series of milestones that will occur before actual flight hardware is built. The review follows a series of successful system requirements reviews for the Ares launch vehicle project, including for the J-2X engine, Ares I first stage and Ares I-1 test flight. The Ares preliminary design review is scheduled for mid-2008. http://www.nasa.gov/centers/marshall/news/news/releases/2007/07-002.html

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Moving. Must sell: tables, chairs, rugs, lamps, sofas, pictures, beds, dressers, hutch. 464-7262

Large trampoline; MTD, Snapper, Wheel House riding mower bagging attachments. 881-6040

Hardware flooring, 3/4" nail down unfinished #1 common red oak, 810 sq. feet, $1.90 sq. ft. 227-0339

PSE Elite bow/carry case, arrows and accessories, $150; 4-wheeler gun boot and bracket, $25. 574-5289

KitchenAid washer and dryer, $200 for set or $125 each. 256-233-8505

Cross Walk electric treadmill, approx. 2 yrs. old, many extras. 464-9034

Silver bullion, 100 oz., $1,350; LaserJet III, two non-working printers for parts and repair, $50. 227-5671

Cherryhill entertainment center wall unit, center armoire, 2 side cabinets w/shelves, $1,200. 256-318-5372

Knight Muzzleloader with Simmons 2.8x10x44 scope, $200. 508-6840

Kayak, 9.5' perception, includes paddle, $220. 325-4731

Kenmore washer and dryer, $275/set; Gazelle, $50. 337-7943

Zenith 20" color television with remote, works, $40. 830-9507 after 5 p.m.

Playstation 3, 60GB, $1,000. 256-665-4358

Kenmore heavy-duty washer and dryer, $250. 601-670-3277

2003 Epiphone Casino guitar, sunburst w/hardshell case, rarely played, $500 firm. 684-0910

Three Ben Hogan Hybrid clubs, 2 & 3 firm graphite, 4 regular steel, $145. 683-3397

1986 Civic CRX/Si service manual, $10; 65-71 Mustang custom restoration platform on wheels, $15. 883-2948

Tanning bed, 16 bulb, $950. 520-1400

Two 27" JVC TVs w/remotes, $100 and $150. 426-9402

19" CRT monitor, NEC Multisync90, SVGA 15-pin, $40. 890-0981

Tire and Volvo rim, 175SR14 Michelin on 5.5Jx14x20 steel rim, $25. 881-6040

Hunting/fishing boat, 16' aluminum camouflaged, 4-seats, Evinrude 30 electric start, with blind. 256-890-0401

Eradicator paint ball gun, $60. 256-533-5942

PS2 games: God of War, RE4, MGS3 Subsistence, DMC3, $15 each, $50 for all. 961-9526

Perego train, $75; Riding Zebra, $25; Brio Rocking Horse, $25; Crawl&Cruise playground, $40. 852-9617

Generation Next convertible crib/day/full bed, cherry, $450. 682-6325

Hot tubs; LA Spa and Four Winds, seats six persons, $3,000 each. 434-0499

HDTV, 51", new-in-box, Hitachi, Model 51F59A, HDTV tuner, HDMI, warranty, $749. 655-1986

1930 vintage Cable midget upright piano, solid mahogany case, fully refurbished, $500. 837-2386

Philips home theater system, 5 discs, 600 watt w/all cables/manuals, $250. 256-654-0816

STIGA tournament tennis table, blue top, 2" steel legs/apron, 4" casters, self-open, tournament net/posts, $400 OBO. 457-0206

RC Simulator, realflight G3.5, includes controller and software, $190. 256-656-0077

Samtron computer monitor, $50; Dell 4/purpose printer, no cartridges, $25. 837-6776

55-gallon fish tank, 12x48x21, with lid, $100. 656-4211

Bill Cosby Family Comedy Show, (3pm – Feb.11), VBC, Box Q Seats, 9 &10, regular price. 233-0705

2 tickets to The Professional Bull Rider Enterprise Series Event in Columbus, GA on Jan. 13, at 8 p.m., $85 for the pair. 777-1845

Toshiba satellite laptop, P3, 600 MHz, $100. 527-8116

Jet Contractor Table Saw with 30" cut and mobile base, $350. 828-4448

Power Pack 5000 watts generator, 10HP Briggs engine, 5-gallon tank, $400.00. 755-6022.

Dremel, plus parts, $30; 2 plots at Huntsville Memory Gardens, $2400. 256-881-4067

Craftsman impact wrench, $25. 461-9404

SUV cover. 539-3284

Hamer Special (USA) Electric Guitar with hard shell case $600. 350-7461

Three glass shelves, 16x24x72, $100 each; antique table, chairs, $300; ten speed Murray bike, 24", $30; large dog crate, $40. 883-6496 or 683-7015

Sears Radial Arm Saw on rolling cabinet, $135; drill press, floor standing, $110. 683-9364

Elliptical trainer, $100; Sears Lifestyler 8.0 treadmill, $150. 772-1870

Custom design twin bed w/mattress & box spring, black with flame design, pin striping with chrome tow hitches for bed knobs, $100. 852-5693

Drop-in oven/stove, stainless top, glass fireplace doors. 721-5983

Digitech RP-50 guitar effects, $40; Boss TU-2 stomp guitar tuner, $80. 655-6293

Vehicles

2004 Honda Civic EX, $12,800. 233-6197

1999 Yamaha XT225, $1,600; 1999 Yamaha PW80, $450. 233-5620

2003 BMW Z4, silver w/gray top, loaded with options, auto transmission, $21,900. 883-6894

1998 Mercury Mountaineer, automatic, 77K miles, leather, sunroof, loaded, $6,500. 256-851-4260

2003 VW Passat GLS, 1.8L Turbo, 4 door, 77K miles, leather, heated seats, moonroof, $11,000. 655-0238

1996 Ford Explorer, 4 door, blue, leather, towing package, all power, 192K miles, $4,275 OBO. 880-6335

1995 Chevy 1500 Sport-side pickup, black, 133K miles, Line-X, Flowmaster mufflers, $6,800. 325-0065

1989 Corrolla, 4 door, 5 speed, red, 169K miles, $1,200. 651-2429

1997 Jeep Grand Cherokee Laredo, red, leather, 6 cyl., 4.0L, 186K highway miles, 23mpg, $3,700. 256-599-3094

2005 Mustang GT Premium, 11.2K miles, Redfire/Charcoal, leather, loaded, manual transmission, garaged, $23,500. 256-541-2435

1955 Chevy, 2-door post, $20,000. 256-777-6167

1996 Cadillac DeVille, loaded, $3,200; 1995 DeVille, loaded, $2,400; 1993 Nissan Altima, loaded, $1,200. 256-520-2802

2005 Camry, 33K miles, ABS, auto, silver, $14,300. 961-9785

1999 Lexus RX300, AWD, towing, premium package, 88K miles, $10,985. 714-4651

2003 Ford Ranger Edge, black, 4-door, super cab, fully loaded, 61K miles, $13,500. 256-931-0077

2001 Toyota Tundra, Access cab, 4WD, PW/PL, roll-top cover, 51K miles, $14,900. 216-1039

1994 Volvo 850, 4dr, red, leather, all power, maintenance records, $3,400. 348-1178

2005 GMC Sierra 2500HD crewcab, black, SLT, 4x4, 29k miles, Line-X, $28,500. 256-340-8097

2004 GMC Yukon SLT, leather, DVD Player, 3rd row seat, sunroof, OnStar, 80K highway miles. $17,900. 214-0110

Wanted

Love seat, sleeper style or recliner style, good condition. 256-971-1414

Manual transmission and seats for 1987 Mustang 5.0. 858-9655/leave msg

Free

Light gray floor mat set from 1992 Mazda 626. 651-5847

To good home, female guinea pig, 6 months, everything except cage included. 464-9700

Lost

Car door handle from 1969 VW Beetle. 227-0339/Dave

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